

State of South Carolina

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South Carolina Floodwater Commission

LANDSCAPE BEAUTIFICATION & PROTECTION TASK FORCE

BACKGROUND

One of the most important elements in successful green space is beautifying public places. Beautification and protection mechanisms are exciting reasons to use plants in new ways to improve the lives of those within vicinity. These green oases give pleasure to millions who crave a connection with nature in their lives.

Beautification and protection mechanisms are established to enhance the natural beauty of areas by adding creative landscape designs and flowers throughout. Design, installation, and maintenance of all permanent landscaping around properties and public right of ways, allow for the ability to take a raw property and transform it into a beautiful and efficient landscape.

Urbanization, clearing trees, draining wetlands, and paving the ground exacerbates flooding. **This task force will examine ways to reduce urban flooding using green space areas and through the use of permeable surfaces wherever possible in landscapes.** Driveways, sidewalks, patios, parking lots, and pathways can be made from porous materials that are firm, but which still permit water to drain. Porous concrete, and porous asphalt are some of the materials that could be utilized to increase permeability.

Along the coast, the careful planning and planting of native coastal plants can help protect property from storm damage and flooding. Coastal dunes provide a buffer against coastal hazards such as wind erosion, wave overtopping and tidal inundation during storm events. They also provide a source of sand to replenish the beach during periods of erosion. For this reason, the protection of coastal vegetation is important for the long-term protection of beach front properties.

Coastal dunes have three general vegetation zones based on soil salinity that can vary in width or may even be entirely absent. These zones can intergrade, and sharp distinctions between zones are usually absent. Landward of the highest tides, frontal zone sites are stabilized by

sand trapping action of various rhizomatous grasses and low growing forbs that are tolerant of salt spray. Trough areas and additional inland dunes may fall in the frontal zone area. Landward of the frontal zone area, the “backdune” zone (also often called the shrub or scrub zone) supports less salt tolerant grasses and forbs as well as shrubs and some trees. The forest zone is the vegetation zone farthest from the ocean, and the vegetation in this zone transition from maritime to non-maritime species. Marshland or grassy areas may occur between the “backdune” and forest zone areas.

Frontal Zone: Only a few plant species can tolerate the stresses of a dune environment, particularly frontal dune sites. Fore-dune plants must be able to survive being buried by blowing sand, sand blasting, salt spray, salt water flooding, drought, heat, and low nutrient supply. Salt spray, by providing potassium, sodium, calcium, and magnesium, is a major source of plant nutrients in dune soils. In the absence of salt-bearing onshore winds, many coastal dune plants grow poorly or die. Many plant species that occur on dune areas have developed specific attributes to help them survive these harsh environments. These include high growth rates, dense root systems, low profiles, and high flower and seed production rates. In the south Atlantic, the fore-dune grasses are usually sea oats (*Uniola paniculata*), bitter panicum (*Panicum amarum*), and marshy cordgrass (*Spartina patens*). Forbs such as sea rocket (*Cakile spp.*), sea purslane (*Sesuvium portulacastrum*), and morning glory (*Ipomoea spp.*) are found on frontal dune sites.

Backdune and Forest Zone: The backdune zone, a series of older dunes that are more stable and have higher organic matter, occur landward of the fore-dune area. When sufficient organic matter accumulates in dune fields on the mainland or barrier islands, colonizing woody vegetation becomes established. Many of the woody species found in dune fields are low growing and shrubby due to low nutrient and drought conditions. Wind and salt spray can have a dramatic effect on the growth and appearance of vegetation adjacent to the ocean. High winds and salt spray often prune the terminal buds of the trees and shrubs growing on the dunes and result in salt-saturated, windswept canopies.

Salt exposure is just one of the many environmental factors that makes coastal landscaping challenging. Selecting plants that are tolerant to salt exposure will increase the rate of success. Salt tolerant plants can range from highly to moderately tolerant.

High salt tolerance plants will grow where they are subject to direct salt spray received along sand dunes and adjacent to the oceanfront. These plants are highly resistant to salt drift and can be used in exposed environments. Plants with a moderate salt tolerance will grow adjacent to the beachfront, but are sheltered by higher salt tolerant plants, structures, or sand dunes. They will tolerate some salt spray but will grow best where they are protected from direct contact.

Fertilization - Initial fertilization is best done at planting with a complete, controlled-release fertilizer.

Irrigation - Irrigation is advisable, where practical, on all dune plantings to ensure adequate moisture during the initial establishment period. Excessive irrigation can favor weedy species to the detriment of dune vegetation, so irrigation should not be used after stands are established.

Maintenance - Native dune species should require little maintenance after establishment. Sites should be monitored for establishment of invasive species and weeded as necessary. All sites should be protected as much as possible from foot and vehicular traffic.

OBJECTIVES

- Appeal unsightly features.
- Contribution to improvement of landscape grounds.
- Reservation for beautification areas provide protection to property.
- Productive use of property - property used for its “highest and best” use maximizes the value of that property.
- Planting native coastal plants will protect property from storm damage and flooding (impact absorption and buffering system).
- Utilization of porous materials that are firm, but that still permit water to drain.
- Maintain attractive places that can stimulate new economic opportunities.
- Coordinate activities with “Living Shoreline Task Force” along coastal areas.

DELIVERABLES

- Landscape consultation to analyze most reasonable outcome.
- Engage in designing and planning the changes necessary to achieve desired results.
- Inspire design ideas and learn techniques for adding interesting elements.
- Grounds to be designed, planted and attended from inception.
- Examine ways to reduce urban flooding using green space areas.
- Examine ways to reduce urban flooding through the use of permeable surfaces
 - wherever possible in landscapes.
- Community involvement and association in planting and beautification development.

TIME FRAME

1Q '19 Identification and recruitment of community volunteers to participate in planning and beautification design.

1Q '19 Research and identification of plants that will support flood mitigation programs.

2Q '19 Development of design and inception planning for landscape.

2Q '19 Generate inception of permeable surface construction.

2Q '19 State-wide maintenance of beautification and protection.